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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/032,389	10/26/2001	Enio Luiz Carpi	01P11911 US	5448

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EXAMINER

BARRECA, NICOLE M

ART UNIT

PAPER NUMBER

1756

DATE MAILED: 12/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

eb8

Office Action Summary	Application No. 10/032,389	Applicant(s) CARPI, ENIO LUIZ	
	Examiner Nicole M. Barreca	Art Unit 1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18,20-23,28 and 29 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18,20-23,28 and 29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
 a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) Paper No(s). <u> v </u> |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-18, 20-23 and 28-29 are pending in this application.

Claim Objections

2. Claims 20 and 21 are objected to because of the following informalities: claims 20 and 21 recite removing stair-step shaped edges of the mask. However as amended claims 20 and 21 depend on claim 18, a claim that has no mention of the mask having stair-step shaped edges. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-3, 18, 20-23, 29 and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The examiner has been unable to find support in the applicant's specification for the amendments made to claims 1 and 18, and new claims 29 and 30, specifically that the long axis of the energy beam is positioned at both a first angular position and a second angular position with respect to the mask blank (cl.1, 18) or that the beam remains stationary while the blank moves or vice versa (cl.29, 30). The examiner asks that the applicant direct the

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examiner to specific page and lines numbers in the specification, which provide support for these newly claimed limitations.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Umeki (US 5,830,605) in view of Kimura (US 4,692,583) and Yabu (US 4,907,021).

7. Umeki discloses the manufacture of a gradation mask and a method for using the gradation mask to pattern a substrate. Photoresist 3 and chromium film 2 are deposited on quartz substrate 1 (col.2, 65-67). The photoresist is exposed to light through mask 4 with shielding pattern, developed and used to etch the chromium film used to form the gradation mask 5 with a stepwise surface profile (fig.1a-1g). The gradation mask is then used to expose optical material 7 formed on substrate 6, forming pattern 7' (fig.3a-3b). A smoothing treatment is incorporated into the fabrication of the gradation mask in order to form a smooth surface profile. One such smoothing treatment is a thermal treatment so as to curve the peripheral edge of the patterned mask (col.10, 18-22, col.10, 64-67).

Umeki is silent on the specific thermal treatment and does not disclose using an elliptical shaped energy beam to reduce the stair step portions. Kimura teaches that a conventional surface heat treating apparatus has an elliptical configuration (col.1, 11-

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22). It would have been obvious to one of ordinary skill in the art to use an elliptical shaped energy beam for the thermal treatment to smooth the stair step shaped edges of the photomask in the method of Umeki because Kimura teaches that this is a conventional heat treating apparatus.

Umeki uses the photomask to form an optical device such as a liquid crystal display device and does not use the photomask to form a semiconductor device. However it is conventional in the art to use photomasks to form patterns in the manufacture of semiconductors, such as DRAM, and in the manufacture of liquid display devices, as taught by Yabu (col.1, 11-30). It would have been obvious to one of ordinary skill in the art to use the photomask in the method of Umeki to form a pattern in the manufacture of a semiconductor device, instead of in the manufacture of a liquid crystal display, because Yabu teaches that photomasks are conventionally used in the manufacture of both semiconductors and liquid crystal display devices.

Response to Arguments

8. The previous 35 USC 102 and 103 rejections over claims 1, 18 and their dependent claims over Yamato, Matsuura or Umeki in view of Kimura and Yabu have been withdrawn in response to the applicant's amendments requiring positioning the long axis of the energy beam at both a first and a second angular position with respect to the mask blank. However as noted above the examiner has been unable to find support in the specification for these limitations and these rejections may be re-applied if the applicant is unable to direct the examiner to sufficient support.

9. Applicant's arguments filed 10/6/03 have been fully considered but they are not persuasive. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., that the long axis of the energy beam is positioned at both a first angular position and a second angular position with respect to the mask blank) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claims 4 and 12 as amended only require that the beam is projected and angularly positioned, limitations which are taught by the prior art. As please note that any and all beams projected at a mask blank would be "angularly" positioned and that this phrase does not add any further limitation to the positioning of the beam.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole M. Barreca whose telephone number is 703-308-7968. The examiner can normally be reached on Monday-Thursday (8:00 am-6: 30 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 703-308-2464. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Nmb
11/25/03


MARK F. HUFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700